Geel 2000 Language Schools

Math Department

First Term

Primary 6

2023 /2024

Unit 1

Lesson 1: using long division in the real wourld

Ex1: divide using the standard division algorithm

a) 6)474 | **b) 3)225** | **c) 24)552**

Ex2: A hotel consists of 13 floors and each floor contains 325 rooms how many rooms are there in this hotel?

………………………………………………………………………………………

……………………………………………………………………………………

Ex3: Ali and his friends collected 216 pounds to distribute to the poor ,if this amount was distributed to 18 people ,How much was the share of each person?

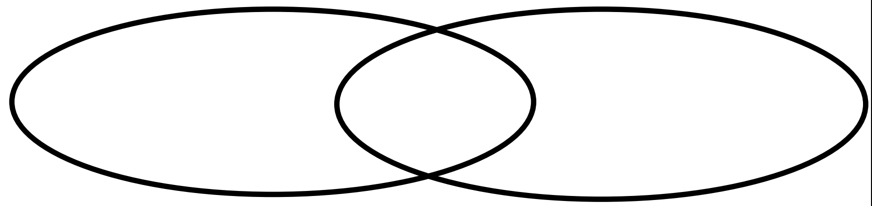
………………………………………………………………………………………

………………………………………………………………………………………

Lesson 2: factorize the number into its prime factors

Ex: use venn diagram to find (G.C.F) and (L.C.M) of each of the following :

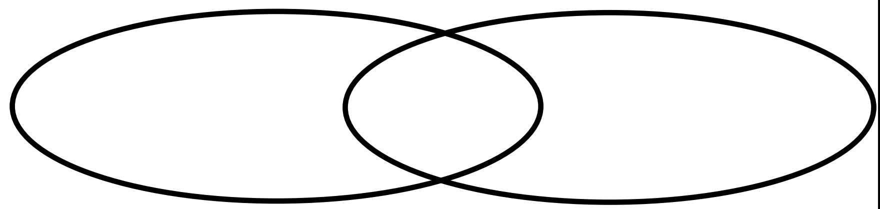
a) 16 and 20



G.C.F = …………………….

L.C.M = …………………….

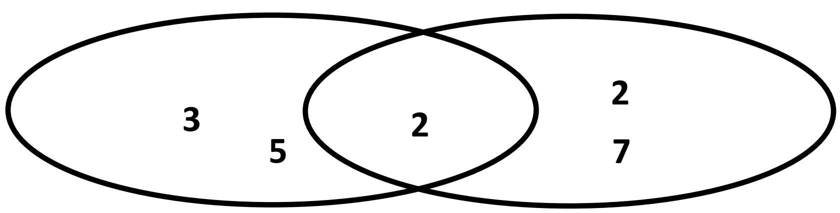
b) 20 and 30



G.C.F =………………………

L.C.M = …………………….

Ex: using the following diagram,complete:



1) the two numbers represented in the venn diagram are ……. And ………

2) the common prime factors of the two numbers are ……….

3) the G.C.F for the two numbers is ……………..

4) the L.C.M for the two numbers is ……………..

Lesson3: writing expressions using G.C.F

Ex 1: complete the following

a) 5 X (7+5) = (5 X…..) + (….. X2)

b) 2 X (….. +…..) = (…… X 3) (…… X 5)

c) the G.C.F for 15 and 18 is ……………………..

d) the G.C.F of all numbers is …………………..

Ex 2: use the G.C.F to write the numerical expressions of each of the following

a) lina has 6 oranges and bananas what is the largest number of bags that can be made so that all bags include the same numbers of items ?

………………………………………………………………………………………

………………………………………………………………………………………

b) the students collected 30 boxes of cheese and 40 bags of legumes what is the largest number of baskets of food that can be prepared with out any food left ?

………………………………………………………………………………………

………………………………………………………………………………………

Lesson 4 : factorize the least common multiple

Ex)find the result

a) $\frac{3}{5} + \frac{1}{5}$ = ...

b) $\frac{1}{5} + \frac{1}{2}$ = ...

c) $\frac{1}{4} + \frac{1}{12}$ = ...

d) $\frac{5}{6} - \frac{1}{2}$ = ...

e) $1 + \frac{2}{9}$ = ...

f) $\frac{3}{4} + \frac{2}{3}$ = ...

g) $2\frac{1}{3} + 1\frac{1}{2}$ = ...

h) $3\frac{1}{3} - 1\frac{2}{3}$ = ...

i) $\frac{2}{5} + \frac{1}{3}$ = ...

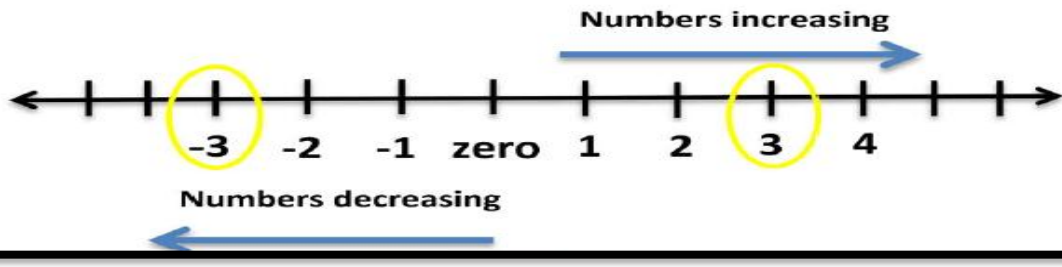
Unit 2

Lesson 1

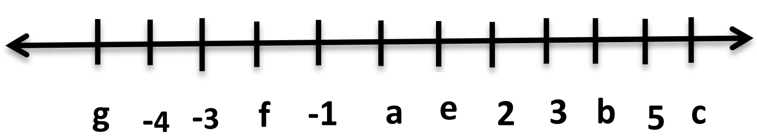
Exercise1 :

Write an integer to represent each of the following situations:

1) the value of the profit is 25 Egyptian pounds. (.................)
2) the value of the loss is 3 pounds . (................)
3) the temperature is 10 degrees below zero. (................)
4) building height 12 meters. (................)
5) the drop is 19 m. underground. (...............)
6) move 4 steps back. (................)



Exercice2: write the numbers indicated by the symbols shown on each of the horizontal number line and the vertical number line :



a....................

b....................

c....................

e....................

f....................

g....................

Lesson 2

Put (> ,< , =):

-5	☐	9	7	☐	3	3	◯	-3
-1	☐	-12	-2	☐	4	-6	◯	-6
1	☐	0	7	☐	-7	-6	◯	5
5	☐	5	-1	☐	0	9	◯	0

Find the inverse (opposite):

-12 → ....   -3 → ....

25 → ....   8 → ....

1 → ....   -1 → ....

Choose the correct answer:

a) the number -3 is located to the right of the number ………… on the number line .

(4 or 4 or 2 or 12)

b) the inverse of -12 is the number ……………..

(12 or 12 or 1 or 2)

c) the number …….. is neither a positive nor a negative number.

(0 or 1 or 1 or 10)

Lesson 3

Classify all the following numbers according to the number groups shown :

	counting	natural	integers	Rational
5				
0				
-7				
3.5				
$\frac{3}{5}$				

Example 1 : Write the following rational numbers in fraction form:

A) 0.75　　(b) -45　　c) 4

d) 0　　e) $3\frac{1}{5}$　　f) -1.5

find the opposite number (additive inverse) of each of the following

1- - 0.8 .... 2- $-\frac{3}{4}$ .... 3- 6.3 ....

4- 2.5 .... 5- 0 .... 6- $3\frac{1}{7}$ ....

Put (< , > , =):

$\frac{2}{5}$ ☐ $\frac{3}{5}$　　$-\frac{6}{7}$ ☐ $\frac{7}{7}$　　$-\frac{2}{7}$ ☐ $-\frac{3}{4}$

$\frac{3}{8}$ ☐ $\frac{3}{5}$　　$-\frac{2}{5}$ ☐ $\frac{2}{3}$　　$\frac{2}{7}$ ☐ $\frac{1}{3}$

Lesson 4

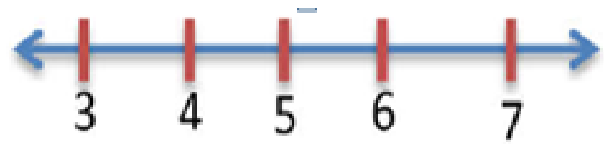
$-5\frac{1}{5}$, 2.2 , $-5\frac{1}{4}$, -5.5 , $2\frac{3}{4}$

ascending .... ‘ .... ‘ .... ‘ .... ‘ ....

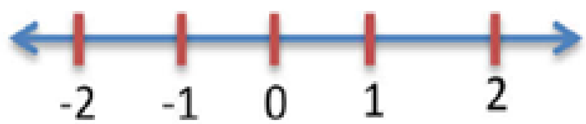
descending .... ‘ .... ‘ .... ‘ .... ‘ ....

Example : identify the following numbers on the number line :

$6\frac{3}{4}$ **Is lie between the numbers..........,..........**



$\frac{1}{2}$ **Is lie between the numbers..........,..........**



	2.5	- 0.8	5	$-3\frac{1}{2}$	$2\frac{3}{4}$
$\frac{a}{b}$	....	....	....	....	....
The inverse	....	....	....	....	....

Lesson 5

Find the value of each :

$| -5 | =$ ……… $| -\frac{3}{4} | =$ ……. $| -7\frac{2}{3} | =$ ………

$| 6 | =$ ………… $| 0.03 | =$ ……. $| 7\frac{3}{5} | =$ ………

Put (< , > , =):

$| -8.2 |$ ☐ -7.9 $| -\frac{8}{3} |$ ☐ $| 2\frac{2}{3} |$

$-3\frac{4}{5}$ ☐ $| -\frac{3}{2} |$ $| -9 |$ ☐ $| -8 |$

Ex : Arrange all of the following :

8 , | -3 | , -17 , -9 , | 27 |

Ascending ……………………………………………………………

23 , | -7 | , -17 , -9 , | 27 |

descending ……………………………………………………………

2.3 , | -7.5 | , -1.7 , -9.6 , | -3.5 |

Ascending ……………………………………………………………

Lesson 6

Find each of the following :

$|-5| =$ .... $\left|\frac{7}{9}\right| =$ .... $|0.03| =$ ....

$|6| =$ .... $\left|-\frac{3}{4}\right| =$ .... $|7.04| =$ ....

Ex : Complete all of the following

1) If $|a| = 5$, then a = ...

2) If it is $|-7| = b$, then............

3) If $n = |9|$, then n = ..

4) $-|5| =$...............

6) $|9|+|-9|$

7) What's the biggest? ....-7.2 or -7.22

Put (< , > , =):

$\left|-\frac{8}{3}\right|$ ☐ $\left|2\frac{2}{3}\right|$ $\left|3\frac{1}{4}\right|$ ☐ $\left|-7\frac{2}{5}\right|$

$4\frac{3}{4}$ ☐ $\left|2\frac{2}{3}\right|$ $|3.4|$ ☐ $|-3.4|$

Unit 3

Lesson 1:

1) classify the following mathematical expressions into numerical expressions or algebraic expressions :

$x^2 + 5$ / 2+7.8 / $\frac{1}{4}m - 2$ / 7(1.4+3.2) / $\frac{1}{2}x - 6$ / 2(m+7) / 54-2 / 5(7) +3 / $\frac{y}{6}$

Numerical expression	Algebraic expression (symbolic)

2) write an algebraic expression for each of the following:

a) if Bassem is x years old now , how old will he be after 5 years ?

....

....

B) suzan saved y L.E. and her father gave her L.E. 10 how much money suzan have ?

....

....

Lesson 2:

1) determine the number of terms and like terms for the following algebraic expressions :

Mathematical expression	Number of terms	like terms
6		
5m+3m+2		
7+9x+9		
X+3+2y+2		
4+8		
5n+2n+10		

2) determine the constants and coefficients in each of the following algebraic expressions:

Mathematical expression	constants	Coefficients
16+3+y		
5		
20+ $\frac{1}{4}x$+3y		
6a+2+3a		
0.7 q + 0.2 r +0.8 m		

3) in the following algebraic expression ,

10x+20x+25

Determine:

a) number of terms:..

b) like terms: ....

c) constants:...

d)coefficients:...

Lesson 3

1) write each of the following algebraic expression in verbal expression

a) m + 8

b) x – 10

c) v ÷ 4

d) 3Y

e) $\frac{Z}{2}$

2) write the algebraic expression for each of following verbal expression

a) the sum of 3 and 5 multiplied by X

b) the product of 2 and y

c) the product of 4 X and 2

d) the sum of 5 and the quantity 2 times C

Lesson 4 & 5

1) complete the following table

Exponential form	The base	The power the exponent
$(4)^2$		
	5	3
	1	6
$(7)^3$		
	5	2
	3	4

2) find the value of each of the following

A)7^2

b) 5^4

c) 3^3

d) 6^2

3) find the value of the following numerical expression

a) $4 \times 5 + 3^2 =$

b) $(3^2 - 8 + 2) \times 4 =$

c) $2 - ((7-3) - 2^2) =$

d) $3^3 X (6+2) - 8 =$

e) $(5^2 + (7 \times 3)) - 20 =$

Lesson 6

1) find the value of numerical expression :

a) $(15-9)+3 \times 4^2 \div 2 =$

b) $(8^2 \div 4 - 5) \times 3 + 2$

c) $25 + (12 + (4^2 - 6) + 11) =$

d) $5^3 - (100 + 20) \times 3 =$

2) find the value of the algebraic expression

a) $6 \div (8x - 3)$ when $x = 0.5$

b) $(20b + 2) \times 3 \div 6$ when $b = 0.1$

c) $10m + 2^2 + 4$ when $m = 5$

d) $9 + (p^2 - 3) + 2$ when $p = 5$

Lesson 7

Ex: Determine whether each pair of the following algebraic expression is equivalent or not

a) $8 + 8x$, $4 (2x +2)$

b) $3b + 5$, $3 (b + 5)$

c) $10 f + 5$, $5 f + 5 + f$

d) $12 y + 18$, $6 (2y + 3)$

e) $x+5$, $3x+2$

f) $(1+ 2) y$, $3 y$

g) $3x+2$, $3(x+2)$

k) $2+8x$, $3+2(x+4)$

Unit 4

Lesson 1:

Find the value of the variable in each of the following equations (solve the equation):

$x + 7 = 15$

= ....

= ....

$a - 6 = 5$

= ....

= ....

$X + 2 = 11$

= ....

= ....

$m - 7 = 9$

= ....

= ....

$5y = 45$

= ....

= ....

$\frac{k}{8} = 6$

= ....

= ....

Choose the correct answer:

If $m + 7 = 25$, then m = ... (7 or 10 or 18 or 20)

If $k = 10$, then k − .... = 4. (10 or 4 or 2 or 6)

If $3f = 27$, then f = ... (8 or 9 or 7 or 4)

Lessons 2 :

Write the inequality that represents each of the following expressions:

ⓐ All values greater than 4: ....

ⓑ All values less than −3: ....

ⓒ All values greater than or equal to −1. ....

ⓓ All values less than or equal to 5: ....

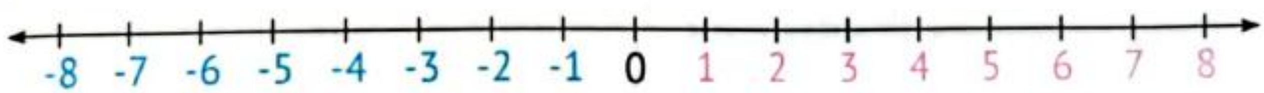
ⓔ All values to the right of 7 on the number line are:

....

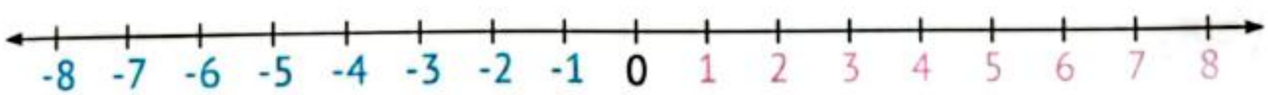
ⓕ All values to the left of −1 on the number line plus −1: ....

Represent each of the following inequalities using the number line shown: (where x is an integer)

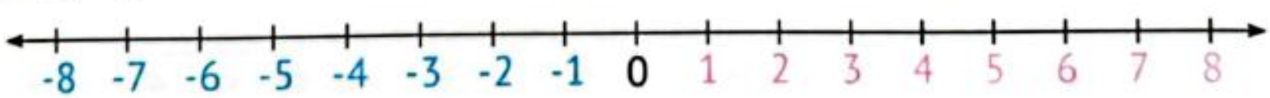
ⓐ $x > 0$



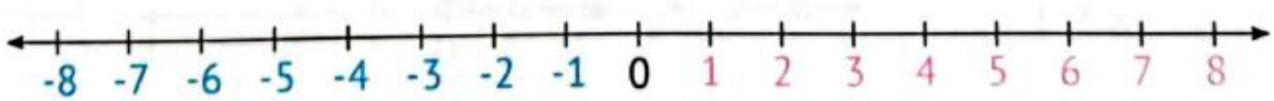
ⓑ $x < 0$



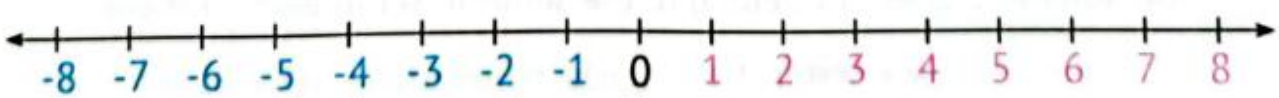
ⓒ $x \geq -1$



ⓓ $x \leq -1$



ⓔ $x > 4$



Lesson 3:

Choose the correct answer:

(a) The inequality representing the statement "All values greater than" 2 is .... ($x > 2$ or $x < 2$ or $x \leq 2$ or $x \geq 2$)

(b) The inequality that represents the statement "All values to the right of -1 on a number line" is ....

($x > -1$ or $x < -1$ or $x \leq -1$ or $x \geq -1$)

(c) Which of the following values is a solution to the inequality "$x > -1$"?

(1 or -3 or -2 or -5)

Name 3 solutions of each inequality:

(a) $m \geq -2$

....

....

(b) $y < -3$

....

....

Unit 5

Lesson 1

Determine the indebendent variable and the debendent variable in each of the following relationships:

1- e=8-r

Indebendent variable=……….

Debendent variable=………..

2- y=5x

Indebendent variable=……….

Debendent variable=………..

3- z+5=m

Indebendent variable=……….

Debendent variable=………..

4- $\frac{s}{3} = b$

Indebendent variable=……….

Debendent variable=………..

5- p - 3=z

Indebendent variable=……….

Debendent variable=………..

Lesson 2

1- Diaa saves 150 pounds every month , so if the amount he saves in (x) month is (y) pounds , then

a) the equation that , represents this situation is ………………..

b)the independent variable is ……………….. the dependent variable is ……………..

c) what diaa saves in a year is …………………..

2- sameh is 6 years younger than his brother ahmed . if sameh is x years old and ahmed is y years old :

a) the equation that represents the relationship between their ages is:………………..

b) the dependent variable is ……………

c) the independent variable is ……………..

d) if sameh is now 12 years old , the age of ahmed is ……………..

3- the price of one kilogram of bananas is 9 pounds , and the price of x kilograms of bananas is y pounds.

a)the equation that represents the relationship between weight of the bananas (x) and the purchase price (y) is…………

B) the independent variable is……….. the dependent variable is……….

c) the price of 5 kilograms of bananas is ………………

Lesson 3

1- complete the following using variables x and y where x is an independent variable :

	Relation	Equation
A		Y = x + 4
B		Y = x - 7
C	Multiply by 5	
D	Divide by 7	
E		Y = 2x + 3
F		Y = x ÷ 2 + 4
G	Add 7 , then multiply by2	
H	Add 6 , then divide by 3	
I	Multiply by 5 , then subtract 2	

2- complete the following statements using variables x and y :

a**)** If the relation is add 3.1 , then the equation is…………………….

If x = 2.9 , then y will be : ……….

b) If the relation is multiplication by 2 , then the equation is…………………….

If x = 8 , then y will be : ……….

c) If the relation is divide by 3 , then the equation is…………………….

If x = 15 , then y will be : ……….

d) If the relation is subtraction from 8 , then the equation is…………………….

If x = 3.5 , then y will be : ……….

Lesson 4

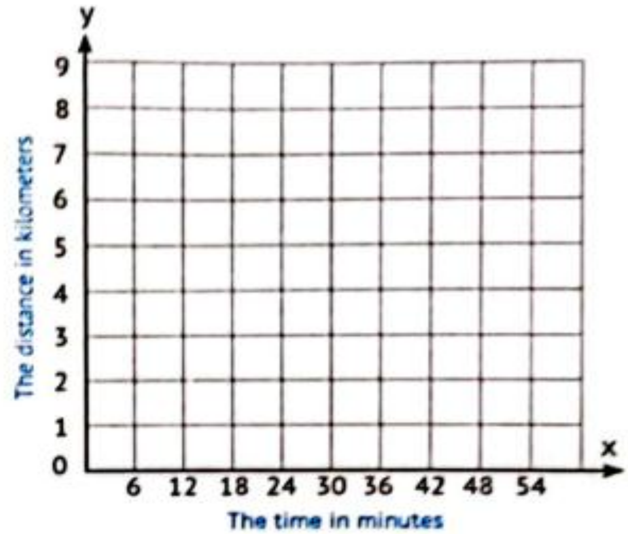
1 **A cyclist on one wheel travels two kilometers in 12 minutes Complete the following table, where the variable "x" represents the time in minutes, and the variable "y" represents the distance in kilometers.**

Write an equation that shows the relationship between the variables "x" and "y", then represent it graphically.

x	6	12	......	......
Y	......	......	3	4

The equation

....



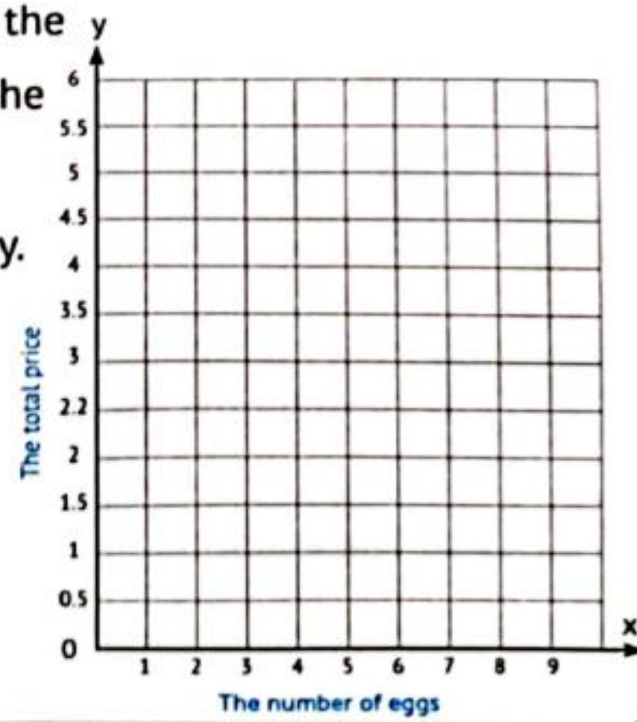
2 **Hossam buys 4 eggs for 6 pounds.**

Complete the following table, where the variable "x" represents the number of eggs, and the variable "y" represents the total price. Write an equation showing the relationship between the variables "x" and "y", and then represent it graphically.

x	1	2	3	4
Y	......	......	......	......

The equation

....



Unit 6

Lesson 1

Complete :

1) numerical statistical data are written in the form of

…………………………………

2)categorical statistical data are written in the form of

………………………………….

3)the favorite colors of number of pupils are

………………….. data (numerical or categorical)

4) what is your favorite school subject ? is

……………………………… question (statistical or not)

5) weight is ……………………….. data

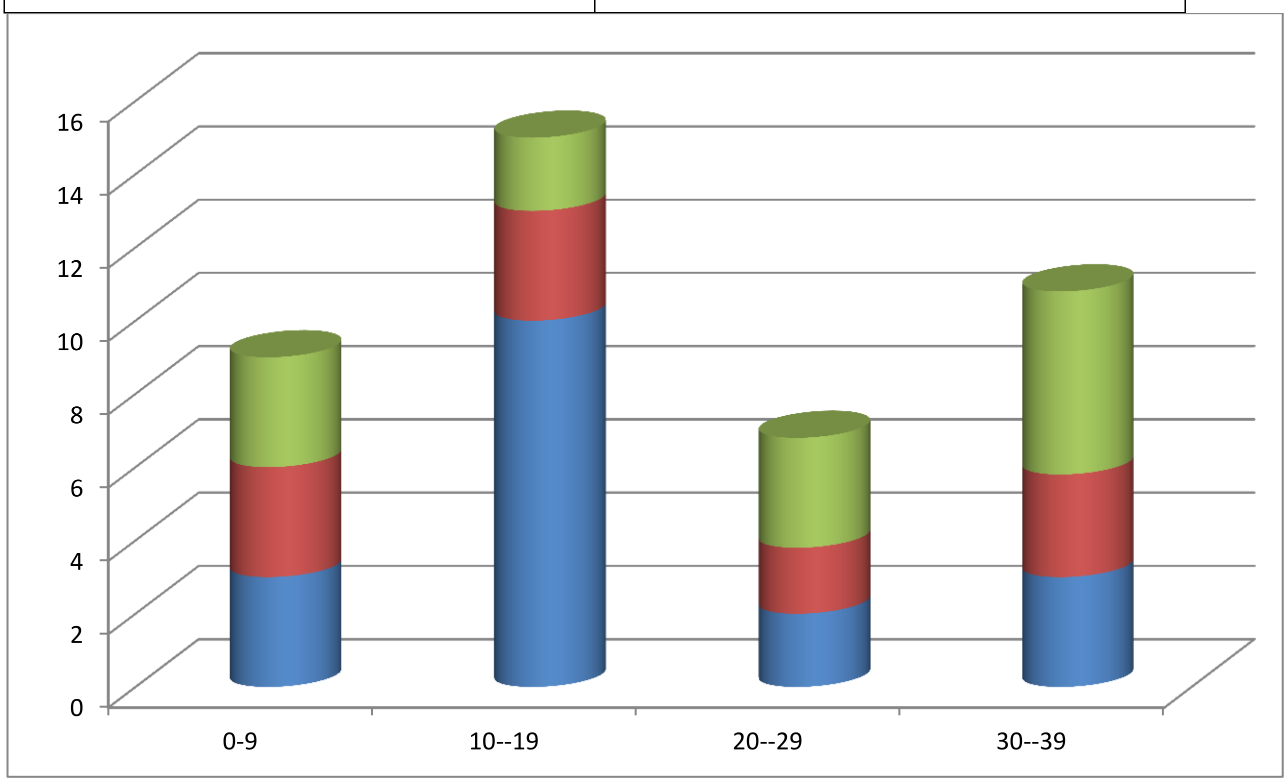
6) favorite sport is ……………… data

7) place of birth is ……………………..data

Lesson 2 :

Complete the table using histogram:

Interval	Frequency
0-9	
10-19	
20-29	
30-39	



Complete the table and histogram for 26 students absent in the class :

Interval	Frequency
0	3
1	2
2	5
3	4
4	6
5	1
6	0
7	3
8	2

Interval	Frequency
0—2	
3—5	
6—8	

Lesson 3:

What is the best graph in the following situation's

(dot plot - bar graph - histogram)

1- what is the number of pupils in each class ?

2- how many passenger are in the first class of train ?

3-How many students get 15 degree in the monthly exam ?

4- how many student had 7 -10 days of defective days during the past year ?

5-how many student prefer the red color ?

6- how many students in your class are between 150 – 160 cm in height ?

7-how many cities had a temperature of 40 degree last summer ?

Lesson 4:

1 Fo set of values: 3 , 11 , 7 , 2 , 3 , 8 , 7, complete:

ⓐ Minimum Value: ....

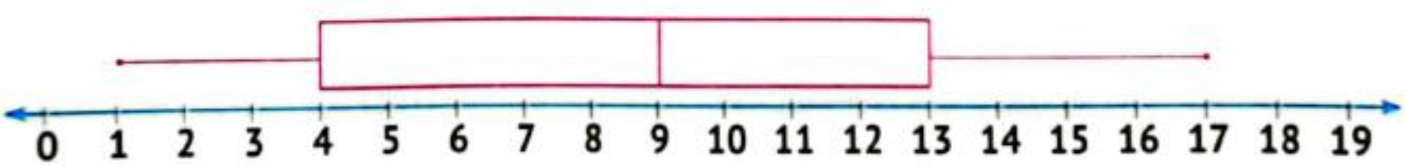
ⓑ Lower Quartile: ....

ⓒ Median: ....

ⓓ Upper Quartile: ....

ⓔ Maximum Value: ....

2 Using the following box plot, identify the 5-point summary of the data set:



ⓐ Minimum Value: ....

ⓑ Lower Quartile: ....

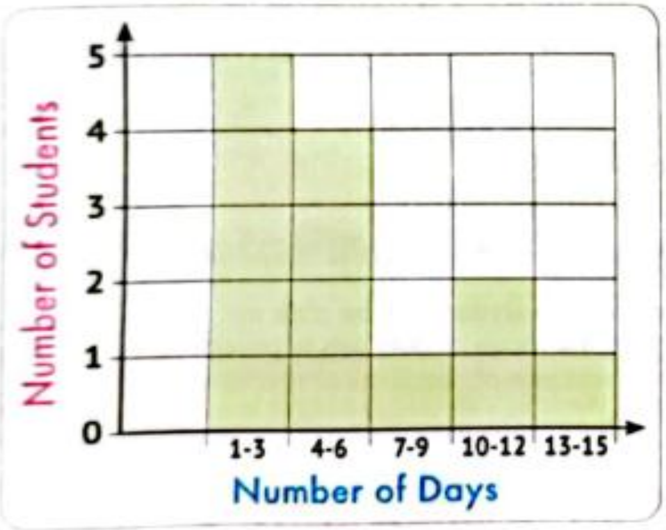
ⓒ Median: ....

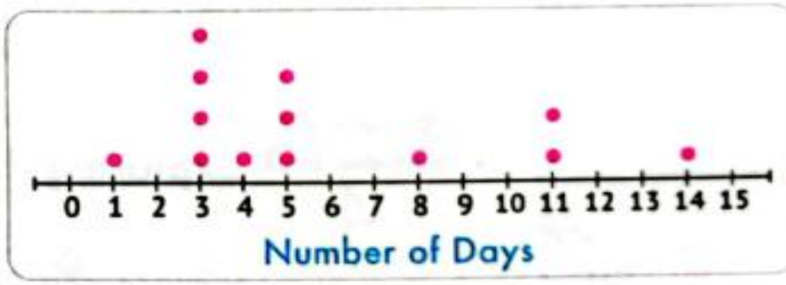
ⓓ Upper Quartile: ....

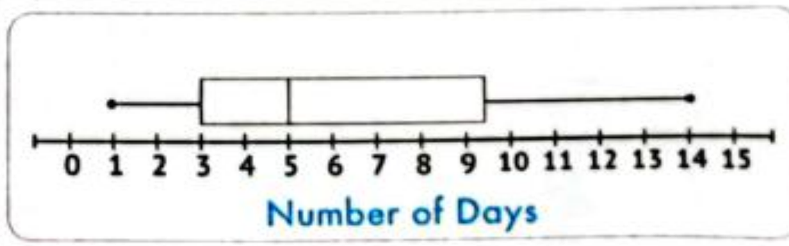
ⓔ Maximum Value: ....

Lesson 5:

The following graphs show the number of days absent for a group of students:







Write two questions would be better to answer using:

a Dot plot:

1 ....   2 ....

b Histogram:

1 ....   2 ....

c Box plot:

1 ....   2 ....

Unit 7

Lessons 1&2

1) **Find the balance of each of following data**

a. **2,3,5,6,7,7**

b. **10,11,13,13,14,15,15**

c. **15,18,10,5,7**

d. **0,1,2,2,3,4,4,4,5,5**

e. **9,3,6**

Rule

$$\text{mean}=\frac{\text{sum of the values}}{\text{the number of values}}$$

2)<u>calculate the mean by using the rule</u>

a. 4 ,6 , 5

b. 10 ,2 ,0 ,20

c. 12 ,15 ,17 ,2 ,14

d. 9.6 , 2.8 , 6.5

e. 13.4 ,15.8, 19.6,11.7 , 14

3)**<u>complete</u>**

a. the mean of the values 18 ,35 , 24 and 6 is

……………………

b. the mean of the values 1 ,2 ,3 ,3,4 and 5 is

……………………..

c. the average of the values 35,50,60 and 55 is

…………………

d. if the sum of five numbers is 30 ,then the mean of these numbers is ………

a. 11 , 20 , x , 7

mean=14

b. 18 , 17 , 15 , x , 16

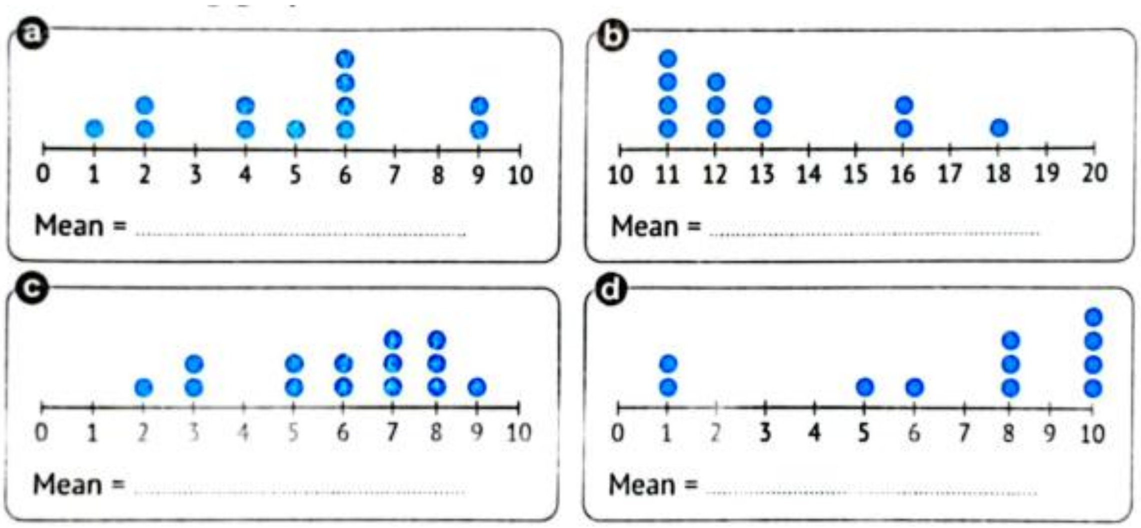
mean=16

4) answer each of the following

a) menna runs 4 km on Sunday ,3 km on Monday , and 5 km on Tuesday. Find the mean distance covered by menna .

b) if rana saves 17.50 L.E. , 15.75 L.E. ,29.75 L.E. from her salary find the mean of rana saving

6) determine the mean



Lesson 3

1)**find the mode of each of the following.**

a. 7 ,6 ,4 ,8 ,2 ,5, 11, 4 ,17 ,7

b. 6 ,2 ,5 ,6 , 4, 1 , 6, 2, 9

c. 7 ,17 ,7 ,17 ,7 ,17 ,7

d. 21 ,26 ,26 ,29 ,29, 29 ,31

2)select the outlier in each of the following

a. 101 ,103 ,105 ,102 ,107 ,106 ,7000 ,104

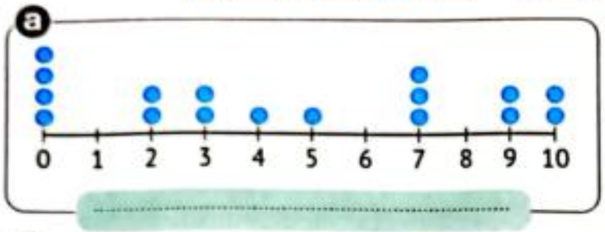
b. 2.3 ,2.2 , 2.1 , 2.9 , 26 , 2.5 , 2.4 , 2.8

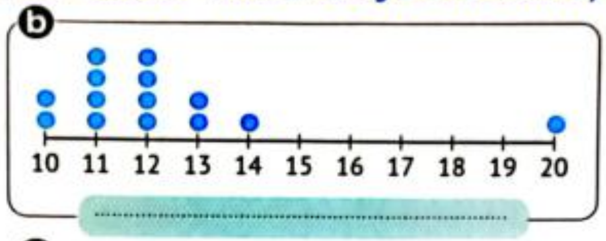
c. 2020 , 2021 , 2022 , 2023 ,2024 ,1975

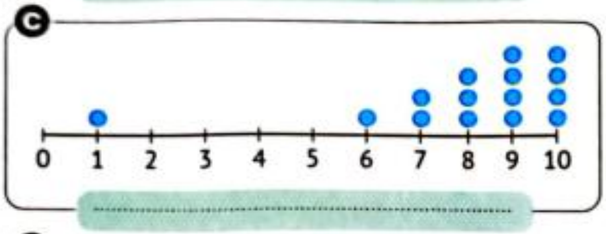
d. $\frac{1}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{84}{7}, \frac{2}{7}$

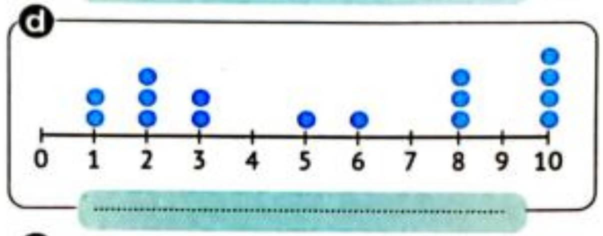
3 **Choose the correct description that applies to each graph below.**

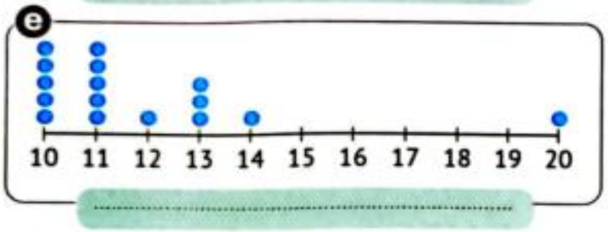
(Mean increases - Mean decreases - Mean stays the same)

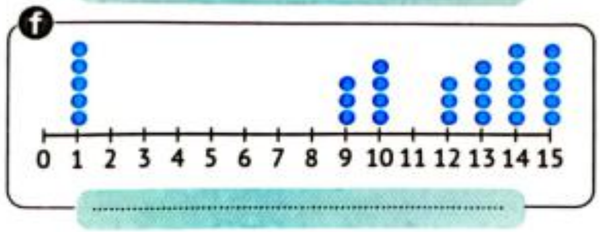




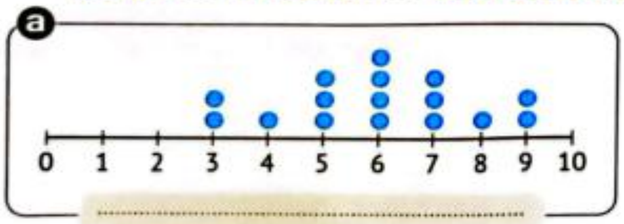


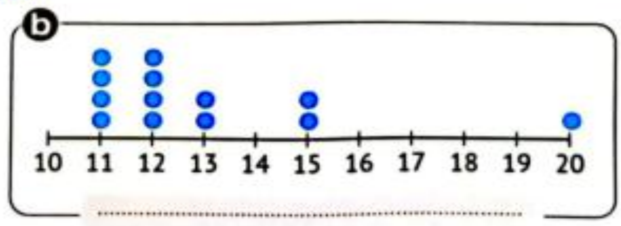


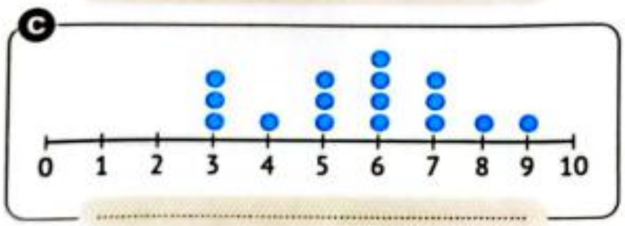


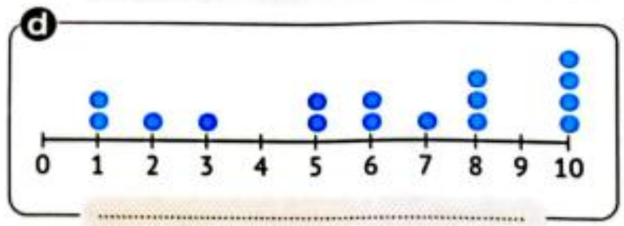


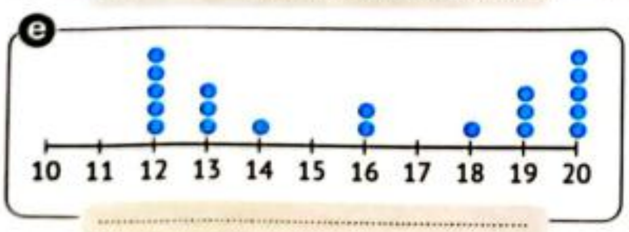
4 **For each of the following data representation charts, choose the measure of central tendency that you think would be best used, mean or median or both of them.**

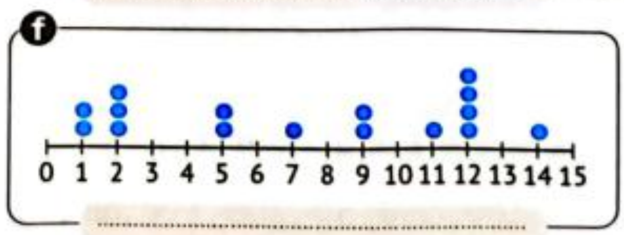




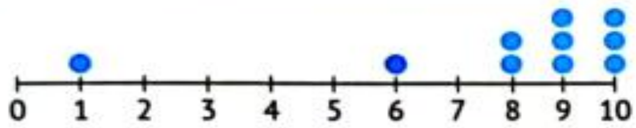
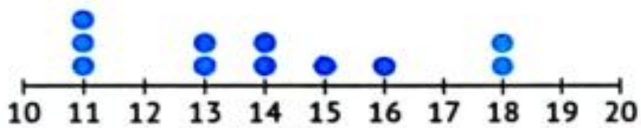
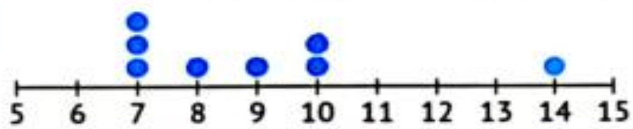
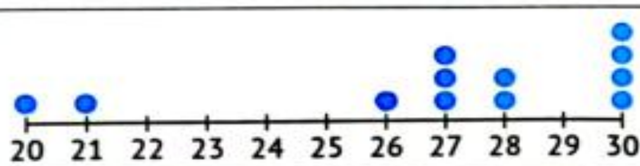








5 Complete the following table using the dot plot graph for each of the following,

	Graph	Mean	Median	Mode	Outliers
a					
b					
c					
d					

6 Complete the following:

ⓐ The mode of a set of data is .... in that set.

ⓑ The mode of the values (9, 2, 6, 7, 2, 8) is ....

ⓒ The outlier in the set of values (9, 8, 7, 25, 6) is ....

ⓓ The mean increases if the outliers are .... than the other values.

ⓔ The mean is .... if the outliers are less than the other values.

ⓕ The mean is .... by the outliers in the data set.

ⓖ The median is .... by the outliers in the data set.

ⓗ If the graph is skewed to one side, then .... will be the best choice as a measure of the center.

ⓘ If the graph is evenly distributed, then .... will be the best choice as a measure of the center.

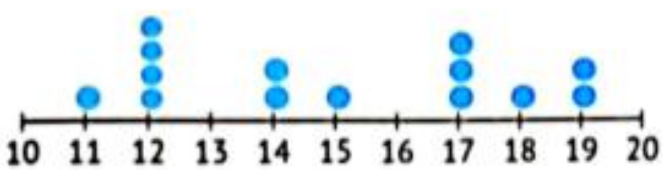
Lesson 4

1 Find the range for each of the following set of values:

	Values	Range
a	45, 25, 13, 30, 35	....
b	11, 45, 17, 25, 13	....
c	6, 2, 7, 7, 5, 3	....
d	9, 2, 7, 6, 3, 4, 9	....
e	15, 36, 70, 25, 12	....
f	7, 9, 2, 7, 2, 7, 2, 5	....
g	66, 25, 66, 15, 66	....

2 Find the range using each of the following dot plot graphs:

a

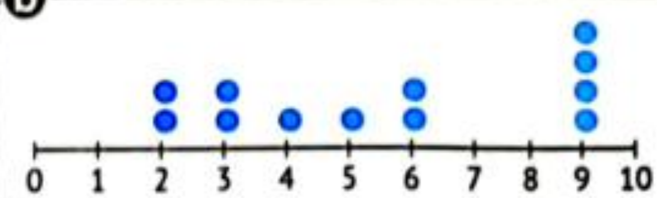


Least value: ....

Largest value: ....

Range: ....

b

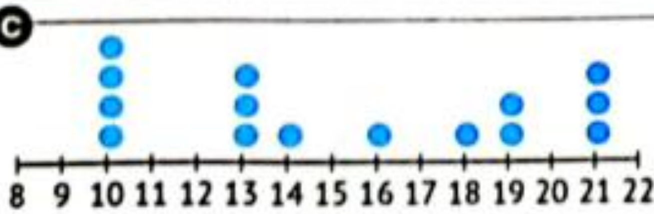


Least value: ....

Largest value: ....

Range: ....

c

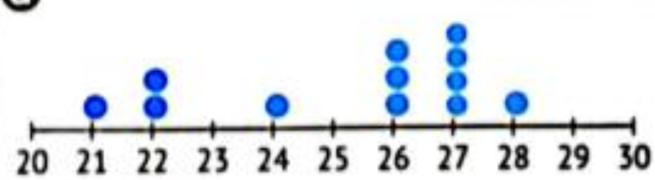


Least value: ....

Largest value: ....

Range: ....

d



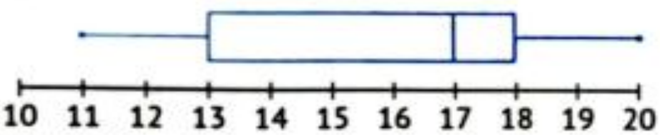
Least value: ....

Largest value: ....

Range: ....

3 Find the range using each of the following box plot:

a

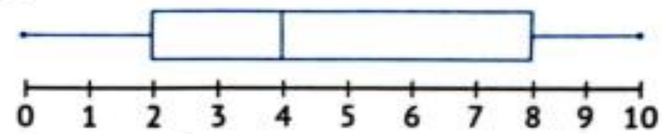


Largest value: ....

Least value: ....

The range = ...

b

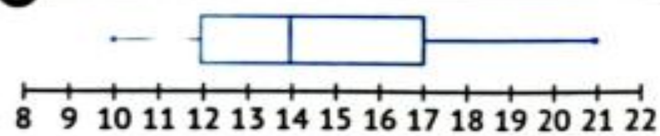


Largest value: ....

Least value: ....

The range = ...

c

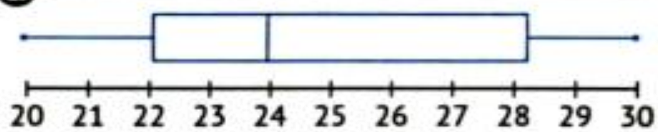


Largest value: ....

Least value: ....

Range: ....

d



Largest value: ....

Least value: ....

Range: ....

General Exercise:

Ex1 :complete:

a) 2 X (….. +…..) = (…… X 3) (…… X 5)

b) the G.C.F for 25 and 15 is ……………………..

c) $3\frac{1}{3}$ - $1\frac{2}{3}$ = ………………………..

d) $\frac{2}{5}+\frac{1}{3}$ = ……………………………..

e) 7^2 = ………………………………..

f) 5^4 = ………………………………

g) 3^3 X(6+2)-8 = …………………..

k) (5^2 +(7x3)) -20 = ………………………

L) If the relation is multiplication by 2 , then the equation is……………………..

If x = 8 , then y will be : ……….

n) If the relation is divide by 3 , then the equation is……………………..

If x = 15 , then y will be : ……….